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Testimony before the House Government Reform Committee

Thursday, February 9, 2006
2154 Rayburn House Office Building

Good morning, I'm Deborah Wince-Smith, the President of the Council on Competitiveness. Thank you, Chairman Davis and the members of the committee, for this opportunity to present testimony on the competitiveness of U.S. businesses and the important role government can play in supporting these businesses. The Council on Competitiveness is a membership organization of CEOs, university presidents and labor leaders committed to developing an action agenda to drive U.S. competitiveness and productivity, so this hearing is of great interest to our organization and, in particular, our chairman, Chad Holliday, President and CEO of DuPont.

One of our members at the Council likes to say that when it comes to competitiveness, Americans tend to veer between complacency and hysteria. On the one hand, many Americans find it hard to conceive of a world where the US is not the global innovation leader. But others point to increasing signs that America's leadership is being challenged in certain areas and could even fall behind if current trends continue. We, as a nation, do not on the cliff's edge as some would argue, but instead at a crossroads. Complacency, a defense of the status quo, leads down a path that could take us to the cliff, but at the very least risks subjecting the United States to a slow erosion of economic leadership and a reduced standard of living for its citizens. Down the other path lies entrepreneurship, risk taking and a national commitment to innovation that can ensure continued economic growth.

A Strong Foundation

Given America's still dominant position in the world and our leadership through most of the twentieth century, I suppose a certain amount of complacency is inevitable. And, the good news. Statistics indicate that our glass is more than half full and we have a strong foundation on which to build our future. Let me share a few key metrics.

- The US consumer market is the largest in the world by far. It is more than twice the size of Japan's- the next largest consumer market.
- While developing nations like China are growing much faster than the US, the US economy is still responsible for a larger share global economic growth than any other country. Over the past five years China has grown more than three times as fast as the US. But since the US economy is 8 times larger than the Chinese economy, that cumulative 3% growth over 5 years added $1.7 trillion to our economy (an amount that exceeds the total size of China's economy).

- Total U.S. R&D spending is greater than all of the other G-7 countries combined and accounts for nearly 44% of all R&D spending in the OECD.[1]
- The US holds nearly 40% of the total global financial stock
- US GDP per capita is among the highest in the world (It has doubled since 1970)
- The US has the highest proportion of population in the workforce of any country in the industrialized world and the lowest long-term unemployment rate in the west
- Despite a dramatic drop in 2003, the US remains the top destination for Foreign Direct Investment. China overtook the US in 2003, but the US has bounced back.

So clearly, the US is still a global leader and the benchmark for competitiveness. So it would seem as though the complacent among us would have the upper hand and say, continue to do what we have done and not rock the boat.

The Challenge

But all of us in this room know that the waters we must navigate in the future 21st century are not those that propelled us to our safe harbor in the 20th century.

Consider these statistics:

- In 1970 the US enrolled approximately 30% of tertiary level students in the world, and over half of s&e doctorates were granted by US institutions of higher education. In 2001-2002 UNESCO data shows that US enrolled just 14% of tertiary students
- Asia now spends as much on nanotechnology as the United States[2]
- Only six of the world's 25 most competitive Information Technology companies are based in the United States; 14 are based in Asia.[3]
- Federal funding of basic research is now only half of its mid-1960s peak of 2 percent of GDP.
- Total scientific papers by American authors peaked in 1992 and have been flat ever since.[4]

Yes, the US still leads the world in many areas, but our competitors are rapidly moving up in the rankings and, in some cases, have already surpassed us. Other countries are adopting America's innovation-led growth strategy. And they are doing it with more focus and intensity than we are.

As Americans we know that we cannot, nor would we want to, compete on low wages, commodity products, or standardized services but on high value economic activity that commands a premium in fiercely contested global markets. Low wage nations around the world are developing high skilled, high performing workforces. And those nations are hungry for the world's work, and it is easier every day to ship that work around the globe

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[1] NSF, Science and Engineering Indicators 2004
[2] Lux Research, *The Nanotech Report 2004*, August 15, 2004. https://www.global salespartners.com/lux/.
[3] *BusinessWeek*, "The Information Technology 100 Scoreboard," June 21, 2004. http://www.businessweek.com/pdfs/2004/0425_it100.pdf.
[4] NSF, *Science and Engineering Indicators*, 2004. http://www.nsf.gov/sbe/srs/ seind04/c5/c5s3.htm#p1.

in bits and bytes. At the Council we say, if work is routine, rule-based, if it can be digitized, and reliably codified, there's going to be a low cost source of labor somewhere in the world to compete for that work and for those jobs.

So the global playing field is leveling and it's becoming clear that we are going to have to work a lot harder to stay ahead in an interconnected global economy. But just when we find it essential to invest in our innovation capacity, we see our ability to invest threatened by our growing triple deficit—in the federal budget, in the current trade balance and in personal savings.

- Between fiscal year 2001 and fiscal year 2004, the federal budget went from a surplus of $127 billion to a deficit of $412 billion.[5]
- And unfunded liabilities like Social Security and Medicare threaten to take up an increasing share of the budget.
- Our trade deficit in 2004 was $617.7 billion, the highest on record. As a percentage of GDP, it increased from 4.5 percent in 2003 to 5.3 percent in 2004.[6]
- The U.S. has the lowest savings rate among developed countries.
- We are now relying on foreign governments—especially China and Japan—to finance our deficit.

Former Chairman of the Federal Reserve Alan Greenspan called these deficits untenable. Together these trends will make it increasingly difficult for us to find domestic sources to fund innovation and to remain the preeminent place to attract high value investment and perform high value economic activity.

The Role of Innovation

Innovation is the key to meeting these challenges.

Building upon the Council's long standing focus on innovative capacity as the productivity driver for U.S. prosperity, we brought together over 500 of the country's most talented thinkers and leaders to ponder the changing nature of innovation, the evolution of the global economy, and, most importantly, what the US needs to do to remain the world leader in innovation. They developed an action-agenda that calls on all sectors of society to work together to solve the great challenges of our day.

Why focus on innovation? Well, our members—CEOs from across industrial sectors, university presidents and labor leaders—firmly believe that innovation will be the single most important factor in determining America's success through the 21st century.

The Council's National Innovation Initiative defines innovation as the intersection between ideas, imagination, insight, invention and implementation. We call it, "I" to the fifth power. Fundamentally, it is about the creation of new value. And the Council's

[5] Global Insight
[6] U.S. Census Bureau, Feb. 10, 2005 (http://www.census.gov/indicator/www/ustrade.html)

long-standing policy research has demonstrated that innovation has been the principal driver of U.S. GDP and productivity growth and a rising standard of living for the past 50 years. More specifically, studies show that total factor productivity—generally attributed to innovation—was responsible for 47% of U.S. economic growth between 2000 and 2004.[7]

But, let me emphasize—for this is crucial to building the public institutions to support new policies and new behaviors—innovation is more than just a driver of economic growth. Innovation has always been the way people solved the great challenges facing society. Today, innovations not yet imagined may enable us to achieve dramatically higher levels of health across the planet; feed vast populations with the protein-based diets essential to health; meet the challenge of a rapidly aging population; find plentiful, affordable, environmentally-friendly sources of energy; and, continually push the frontier of exploration. And innovation will lead to the solution of problems that do not even exist yet and to the opening of new vistas of undreamt of opportunities for ourselves and for future generations.

Innovation has changed tremendously from the days of large industrial research laboratories and ivory tower universities. Where, how and why innovation occurs are in flux – across geography and industries, in speed and scope of impact, and even in terms of who is innovating. We see this transformation in a number of areas.

- The pace of innovation is increasing. For example: while it took 55 years for a quarter of the country to get an automobile, 35 years for the telephone, and 22 years for the radio, it has only taken 16 years for the PC, 13 years for the cell phone and just 7 years for the Internet to penetrate a quarter of the U.S. population (and those trends are just as quick in other countries).
- Innovation has become multidisciplinary. It arises from the intersections of different fields or spheres of activity.
- At the same time, it is collaborative – requiring active cooperation and communication across organizations, companies, regions and countries. "Co-creation" is the new buzzword.
- Consumers are now in charge as we have moved from a production-driven world to one in which discerning customers are in charge with choice and power.
- And it is rapidly becoming global in scope – with advances coming from centers of excellence around the world.
- Manufacturing and services are merging
    - The sharp dividing line between manufacturing and services is increasingly blurred.
    - Manufacturing companies are transforming themselves from product suppliers into solutions providers—melding services seamlessly into product lines.
    - When they blend like this we're actually creating whole new markets and market opportunities.

[7] Global Insight

At the same time that innovation has become a global enterprise, the world economy has globalized and integrated at a pace few predicted even 10 years ago. In less than 20 years, many nations have at last embraced market economies and moved toward political democratic norms. And this is a fantastic metric of success for world stability and quality of life. It also means that countries can now compete on traditional cost and quality terms, but they know that it is innovation—the ability to create new value—that will confer a competitive advantage in the 21st century. The playing field is leveling, and the barriers to innovation are falling.

My core message is that America's long-standing lead in innovation and entrepreneurship is by no means assured. We must create an environment in which innovation can flourish and transformational value can be achieved.

The National Innovation Initiative

This challenge is why the Council launched the National Innovation Initiative. Co-chaired by Sam Palmisano, the chairman and CEO of IBM, and Wayne Clough, the president of the Georgia Institute of Technology, the initiative was guided by a Principals Committee of 17 other CEO's and university presidents representing organizations as diverse as American Airlines, Amgen, Pepsi, GM, Morgan Stanley, Columbia University, MIT, Stanford and the University of Michigan. Engaging more than 500 leaders and experts across industry, academia, government and labor, the NII epitomizes the changing nature of 21st century innovation itself—exemplifying a dynamic process of collaboration and competition. This unprecedented group of thought leaders came together to understand the changing nature of innovation in the 21st century, and—even more important—to generate a set of actions for companies, universities, community colleges, state and local government and entrepreneurs to ensure that the U.S. stays at the leading edge of innovation. In December 2004, our work culminated at a National Innovation Summit where we released *Innovate America*, a report that lays out the challenges we face, the opportunities that lie ahead and the path to get us there.

The Innovation Agenda has three foundational platforms or building blocks —Talent, Investment and Infrastructure. Each platform has three primary objectives and specific recommendations and collectively these recommendations constitute an integrated sustainable path for 21st Century prosperity. Let me just highlight one or two for each of the objectives.

Talent addresses our human capital needs. In this area we have three objectives:

1. Build the base of scientists and engineers
   - For example, by pioneering an extensive portable graduate fellowship program to give control of educational choices back to students. Attract the best and the brightest students and workers from around the world by reforming our immigration system.
2. Catalyze the next generation of innovators
   - By funding internships for innovation-oriented students to experience

local startup and small business environments, and,

3. Empower workers to succeed in the global economy
    - Ensure federal job training programs have the flexibility to target the skills needed for the jobs of the 21st century.
    - Improve the portability of healthcare and pension benefits.

The Investment area addresses the balance between risk and reward and the incentives—or disincentives—for people and institutions to invest in innovation. Our priorities here are:

1. Revitalize frontier and multidisciplinary research
    - Increase federal funding of basic research, with an emphasis on the physical sciences.
    - By reallocating 3 percent of all federal agency R&D budgets toward "Innovation Acceleration" grants that invest in novel, high-risk and exploratory research
2. Energize the entrepreneurial economy
    - Establish10 Innovation Hot Spots™ at regional locations across the United States over the next five years through public-private partnerships explicitly focused on supporting regional innovation.
3. Reinforce risk-taking and long-term investment
    - Make the R&D Tax credit permanent..
    - By setting the national goal to reduce cost of tort litigation from its current level of 2.23 percent of GDP (or $809 per person) down to 1 percent.[8] No other country bears such a large burden.

And that brings me to a core reality. Investing in innovation demands adherence to two fundamental principles: a willingness to accept risk and a willingness to wait for the return on investment. Although America's entrepreneurial economy understands and embraces these principles, the much larger financial mainstream may be now moving in the opposite direction. Investment time horizons are getting shorter. Long-term innovation strategies remain undervalued. And business executives in publicly held companies now face a regulatory climate that is blurring the line between business risk and legal risk. Intangible assets, which represent an increasingly large percentage of the value of corporations, still don't show up on the balance sheet, reducing incentives to invest in creating more value. The challenge is transparency, disclosure and corporate governance.

The Infrastructure area covers not only the physical infrastructure that supports innovation but also to the political, regulatory and legal infrastructure that facilitates innovative behavior.

1. Create a 21st century intellectual property regime
2. Strengthen America's advanced manufacturing capacity
3. Put in place a national, coordinated innovation policy with representatives from the public and private sector.

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[8] Towers Perrin, "U.S. Tort Costs 2003 Update," http://www.towersperrin.com/tillinghast/publications/reports/2003.

The National Innovation Agenda is quite broad, covering the range of elements that makes up the innovation ecosystem. This point is worth emphasizing as Congress considers the President's recently announced American Competitiveness Initiative and related congressional proposals that would implement various parts of the innovation agenda.

The Administration's competitiveness initiative endorses the critical idea that innovation is an ecosystem requiring a highly-skilled workforce, investment in long-term basic research, and an infrastructure to glean value from the knowledge and new ideas we create.

The evolution of China, India and other countries as legitimate competitors on the world stage has changed the global economic dynamic for good. We cannot look back as a nation and seek to recapture the jobs or industries of the past. We must look forward to create new ideas, new technologies and new jobs that will drive America's future prosperity.

The Path Forward

Not resting on our laurels, the National Innovation Initiative continues to evolve and with the tremendous support of many of our members we are moving forward with the next generation of programs to build upon the findings and recommendations of *Innovate America*. Initiatives around the future of manufacturing, a national high performance computational infrastructure, regional innovation, energy and sustainability in the 21st century, and innovation metrics are being developed as we map out tipping points facing our nation and the actions needed to bolster long-term prosperity in America.

This effort is being led by a Leadership Council of many of the business and academic leaders that contributed to the NII, but also includes several new CEOs, university presidents and labor leaders.

Craig Barrett, the Chairman of Intel, and Bill Brody, the President of Johns Hopkins, are leading this initiative and it was under their stewardship that 140 CEOs, governors, university presidents and luminaries signed their name to the campaign that ran in the Wall Street Journal and Washington Post earlier this week calling for a national innovation agenda.

Going forward, we will follow-up on what we call the NII "over the horizon" initiatives. It is important that we work to extend this agenda at home, in new regions and across the globe in order to maximize the potential for collaborative efforts and the benefits of innovation to our economy.

21st Century Manufacturing

New value creation is the goal of the innovation continuum.

We are on the cusp of a technological renaissance in advanced manufacturing with the emergence of desktop fabrication, touch-sense-feel process controls, T-to-T, production slicing, nanoscale manipulation of matter and the acceleration and transformation of product development through high performance computing tools that will radically change the move from mass production to mass customization and by the acceleration of product design and realization into the hands of entrepreneurs and small businesses.

The NII report warned that the nation has been too quick to write-off manufacturing with the 4Ds: dirty, dumb, dangerous—and disappearing. Or to try to save 20th century mass production from global competition.

Indeed, in emerging areas like nano and biotechnologies, we should be balancing our leadership in cutting-edge science with leadership in cutting-edge manufacturing (like the Japanese, Germans, and increasingly, the Chinese). In fact, Japan has been repatriating its most advanced manufacturing.

We are also in the midst of a process revolution that will require a completely new set of skills and strategies. Governor John Engler, the President of the National Association of Manufacturers and Mike Burns, the CEO of Dana Corporation along with a number of their colleagues on the Leadership Council will undertake an effort to better understand this phenomenon and make recommendations to ensure America's future manufacturing capacity.

A critical part of this initiative is the power of High Performance Computing to keep alive the manufacturing renaissance.

In today's competitive global market, HPC has become essential to accelerating innovation. HPC assists companies in creating new inventions and products; in designing better, more reliable products, processes and services; in minimizing the time to build engineering prototypes; and in streamlining production processes and reducing production costs.

One of America's greatest comparative advantages is our global leadership in HPC.   The Council has a major HPC initiative led by Karen Holbrook, the President of The Ohio State University, and David Shaw, of D.E. Shaw & Co., Inc., to study how HPC is, or is not, utilized by the private sector and what role public/private partnerships can play in facilitating that use.

Energy

A 21st century energy infrastructure is one of the linchpins of America's ability to compete in the global economy. The tight linkage between energy and the economy is not a new concept; every president since Nixon has made energy independence, efficiency and diversification a national priority. What is new is that geo-strategic, geo-economic and bottom line interests are converging with technological opportunity -- creating a tipping point for action.

At the same time, the technological options for energy efficiency and fuel and feedstock diversification create significant opportunities to effect real change in the marketplace. At the federal level, the National Energy Plan lays out the urgency to develop reliable and affordable energy supplies. For the first time, perhaps, America's major energy providers are investing hundreds of billions of dollars in alternative energy sources while leading corporations are proving the business case for sustainability.

The nation can rise to the global energy challenge by applying both its capacity for innovation and it ability to forge public-private partnerships that share ideas, talent and investments. Never has it been so critical to create innovative energy solutions that will sustain both our global economic leadership and domestic prosperity. This year the Council will launch an initiative to create a private sector energy roadmap – grounding the nation's investment and policy priorities in the business case for sustainability, diversification and energy efficiency.

Regional Innovation

The United States is not an innovative country -- it is an agglomeration of innovative, and non-innovative, regions. Our national innovation output is hindered by the many regions have not successfully implemented innovation-based growth strategies.   As the *Innovate America* report argues, for America to prosper, we must help all our regions reach their full potential to support innovative firms and organizations.

The good news is that most US regions have embraced innovation as the key driver of economic growth. They are benchmarking their vulnerabilities and strengths, addressing challenges and building from a position of strength. Many have created leadership networks and identified private sector champions to lead community efforts to re-position the region for future success. Some have embraced the concept of regionalism, refusing to be hamstrung by invisible jurisdictional and institutional boundaries.

The Council on Competitiveness is undertaking two core sets of activities as part of a Regional Hot Spots Initiative: policy and technical assistance and innovation tool development.

The Council is working under a grant from the Department of Labor to assist with the rollout and implementation of the Workforce Innovation in Regional Economic Development WIRED program, a path-breaking effort to trigger "innovation hotspots" consistent with the type of public sector innovation called for in the NII and our regional innovation efforts.

In parallel, the Council will design new programs and tools to assist regions as they work to become innovation hot spots.   The Council will explore three groundbreaking areas for innovation tool development:

- Better linking business people and community entrepreneurs to local universities and research centers to improve the commercialization of innovation
- Leveraging national supercomputing assets to provide support to regional firms economic development efforts
- Integrating product design principles into regional firms' competitive strategies

Conclusion

Government plays critical roles in enhancing and supporting the competitiveness of American businesses starting with ensuring there is an innovation friendly climate for U.S. enterprises to develop and compete at home and abroad. Today, more than ever before, the government must invest in the long term vitality of our greatest asset, the American people. We must ensure that our children are equipped with the knowledge and problem solving skills through better math, science education that will allow them to reach their full potential as high performing entrepreneurs. Another Council member once commented that "We need artists who can think like engineers, and engineers who can think like artists." These are the small and medium sized business leaders that will drive America's economic growth in the future if government makes the investments in their future now.

Government must accelerate its long standing commitment to invest in research and development at the frontiers of knowledge and ensure that America's universities and colleges remain preeminent in the world. Finally, the government must look for avenues to support the development of an advanced manufacturing capability in the United States that will position us to take full advantage of the investments in research and human capital. At one of our recent meetings, Roger Enrico, former CEO of PepsiCo and now CEO of Dreamworks Animation, talked about the importance of making big changes to big things. Change and progress, he explained, will never come if you don't free yourself from the tyranny of incrementalism. Dramatic results do not come from undramatic action. Innovation is a race with no beginning and no end. Let's get started.